

C. HUBERT.
PORTABLE LIGHTER.
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1,022,140.

Patented Apr. 2, 1912.

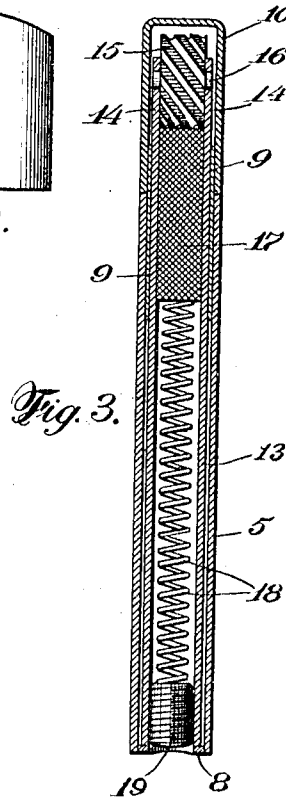
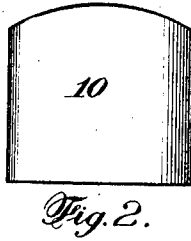
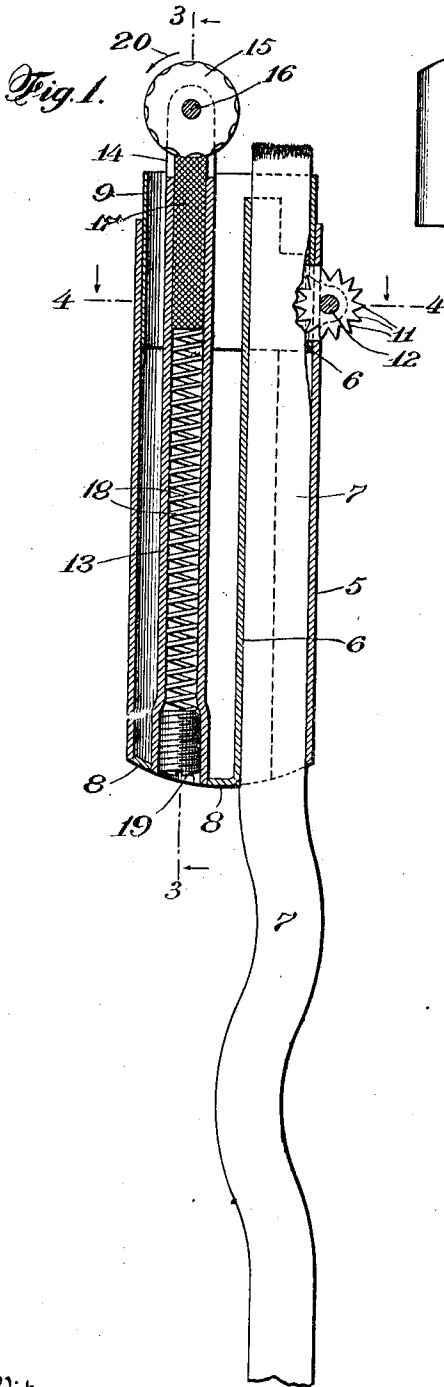
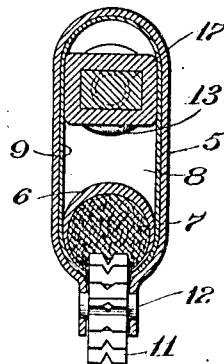


Fig. 4.



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UNITED STATES PATENT OFFICE.

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PORTABLE LIGHTER.

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To all whom it may concern:

Be it known that I, CONRAD HUBERT, citizen of the United States of America, residing in the borough of Manhattan, city of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Portable Lighters, of which the following is a specification, reference being had therein to the accompanying drawings, forming part thereof.

My invention relates generally to portable or pocket lighters and particularly to that type of such lighters wherein a frictional sparking device is employed.

My invention has for its objects simplicity and economy of construction, ease of operation, compactness and durability.

I employ as a spark producing part a material known as a pyrophoric alloy, which, upon comparatively slight friction, will emit a shower of sparks capable of igniting a tinder or wick. Such pyrophoric alloys are now known to the art and may constitute an alloy of some one or more of the rare earth metals, for example, an alloy containing cerium and iron has been found suitable for the purpose. However, it should be understood that my present invention is not directly concerned with the nature or composition of the pyrophoric alloy employed, but has to do with an ignition device adapted to employ such sparking material or pyrophoric alloy. The coating friction element is also of a metallic nature, but of considerably harder material, as for example, steel, and in my present invention is in the form of a friction disk.

My invention includes a guide arranged substantially parallel with a wick tube and the mounting of the friction disk to rotate in a plane passing longitudinally through the wick tube and the guide.

My invention includes a construction embodying a friction disk adapted to be directly actuated by the hand without the use of intermediate gearing.

My invention also includes several details of construction and combinations of parts as will hereinafter appear.

I shall now describe my invention with reference to the accompanying drawings and shall thereafter point out my invention in claims.

Figure 1 is a central vertical section of the complete device with the cover omitted. Fig. 2 is a side elevation of the cover. Fig.

3 is a vertical section on a plane indicated by the line 3—3, of Fig. 1 as viewed from the right. Fig. 4 is an enlarged cross-section on a plane indicated by the line 4—4 of Fig. 1, as viewed from the top.

In the embodiment of my invention illustrated in the drawings, a flattened sheet metal casing 5 is provided with a wick tube 6 adjacent to one edge thereof. For convenience and simplicity of construction, the wick tube 6 is cut away or is open substantially along its side adjacent to the edge wall of the casing 5, so that the wick 7 comes directly in contact with the curved wall of the casing 5. An extension at the lower end of the wick tube forms a bottom closure 8 for the casing 5. The casing 5 is provided at its upper end with a sleeve 9 largely telescoped therein but forming an extension therefrom adapted to receive and hold a cover 10. For conveniently raising and lowering the wick a star wheel 11 is pivoted on a pin 12 shown as supported by ears extending from the casing 5, such star wheel engaging the wick 7 through a slot shown as formed through the casing 5, sleeve 9 and wick tube 6. In the invention as illustrated, the wick 7 is of a material which quickly forms a tinder when spark-ignited. It is preferably of considerable length and as the wick tube extends through the bottom of the casing the wick may have, as shown, a reserve portion extending below the lower end of the casing.

Sparking devices are provided for igniting the upper end of the wick exposed above the upper end of the wick tube. A guide tube 13 extends parallel with the wick tube 6 substantially throughout the length of the casing 5 and sleeve 9 and is shown as supported by the bottom closure 8 and the sleeve 9. The guide tube 13 is shown as of substantially rectangular shape except at its lower end and has at its upper end upwardly extending side lugs 14, between which is pivoted a friction disk 15 on a pivot pin 16. It is to be noted that the friction disk 15 is mounted to rotate in a plane passing longitudinally through the wick tube 6 and the guide tube 13, being thereby in an advantageous position for engagement by the thumb and also, in connection with the parallel arrangement of the wick tube and the guide tube, contributing to compactness of construction. This friction disk is of hard metal and may be of steel and is roughened

on its peripheral face, being shown as provided with milled spiral ridges. A bar 17 of sparking material, such as hereinbefore described, and of rectangular cross-section, fits loosely in the guide tube 13 and is pressed against the under side of the roughened periphery of the friction disk 15 by a coiled thrust spring 18 in the tube 13 below the bar 17 and abutting at its lower end against a screw plug 19 threaded into the cylindrical lower end of the guide tube 13.

Both the sparking element 17 and the wick tube 6 are located substantially at the same side of the friction disk 15 and substantially at the same side of a plane tangent to the friction disk and passing between the sparking element 17 and the friction disk 15, and also passing between the wick 7 and the friction disk 15, thereby leaving a large portion of the periphery of the friction disk 15 exposed and giving unobstructed access thereto for easy actuation thereof.

In operation, after removing the cover 10 and turning up the wick to substantially the position shown in Fig. 1, the thumb is pressed against the exposed periphery of the combined friction disk and thumb wheel 15 and is drawn downward so as to rotate the friction disk in the direction indicated by the arrow 20, whereupon a shower of sparks will be driven from the upper end of the bar 17 against the contiguous exposed portion of the wick 7 and will ignite the same. After using the device, the wick 7 is extinguished by replacing the cover 10. It is to be noted that very nearly the entire length of the material of the sparking bar 17 can be used and, when it is nearly gone, a fresh bar may be readily inserted upon removal of the screw plug 19 and push spring 18.

It is obvious that various modifications may be made in the construction shown and above particularly described within the principle and scope of my invention.

I claim:

1. A portable lighter comprising a wick tube, a guide substantially parallel with the wick tube, a combined thumb wheel and friction disk located at the end of the guide and mounted to rotate in a plane passing longitudinally through the wick tube and the guide and in exposed position so as to be directly manually operatable, a sparking element slidable along the guide into engagement with the combined thumb wheel and friction disk, and means for pressing the sparking element against the combined thumb wheel and friction disk.

2. A portable lighter comprising a wick tube, a combined thumb wheel and friction disk mounted to rotate in a plane passing longitudinally through the wick tube and located adjacent to the end of the wick tube, a sparking element, and means for holding the sparking element in engagement with the combined thumb wheel and friction disk.

3. A portable lighter comprising a wick tube adapted to expose a wick at its upper end, a guide tube substantially parallel with the wick tube and bifurcated at its upper end to form side lugs in proximity to the upper end of the wick tube, means joining the wick tube and the guide tube, a combined friction disk and directly manually operatable actuating wheel pivoted between the side lugs and disposed in a plane passing longitudinally through the wick tube and the guide tube, a bar of sparking material slidable in the guide tube into engagement with the peripheral face of the disk, a coiled thrust spring in the guide tube below such bar for pressing the bar into frictional engagement with the disk, and an abutment for the lower end of the spring.

4. A portable lighter comprising a casing, a wick tube therein adapted to expose a wick at its upper end, a guide tube therein substantially parallel with the wick tube, a bar of sparking material loosely slidable in the guide tube and exposed at the upper end thereof adjacent to the exposed portion of the wick, a combined friction disk and thumb wheel peripherally frictionally engaging the exposed end of the bar of sparking material, a coiled thrust spring in the guide tube below such bar and abutting the lower end thereof, and a screw plug in the lower end of the guide tube forming an abutment for the lower end of the spring, the bar of sparking material being of polygonal cross-section and the contiguous portions of the guide tube being sufficiently conformed to the cross-sectional shape of such bar to prevent rotation of the bar in the guide tube.

5. In a portable lighter, the combination, with a sparking element, of a combined thumb wheel and friction disk, and means for pressing the sparking element into contact with the combined thumb wheel and friction disk.

In testimony whereof I affix my signature in presence of two witnesses.

CONRAD HUBERT.

Witnesses:

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